Conchoecia hystrix n. sp. a new halocyprid ostracod for the Porcupine Bight region of the Northeastern Atlantic

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Introduction

During *Discovery* cruise 105 investigations were made into the influence of the proximity of the sea-bed on the midwater fauna on the continental slope just south of the Porcupine Sea Bight off south-west Ireland in the Northeastern Atlantic. Samples were collected to within 15 m of the seabed at four stations over soundings ranging from about 1000–1650 m using a multiple RMT 1 + 8 system (Roe & Shale, 1979). Height above the bottom was measured by the reflection of the sound signal from the net monitor used to control the opening and closing the nets and to telemeter back to the ship the depth of fishing, net speed and the *in situ* temperature.

Each set of samples included a series of three successive samples of a plankton net with a nominal 1 m^2 mouth area and a mesh size of 0·33 mm, and a micronekton net with a nominal mouth area of 8 m^2 and a mesh size of 5 mm. Each successive sample was fished closer and closer to the sea bed. Since the soundings varied along the ship's track, the nets were kept within a constant range of the sea bed.

Initial analysis of the planktonic ostracods has revealed the presence of a new species of halocyprid ostracod that fits the old concept of the genus *Conchoecia* (sensu Müller, 1906), but does not fit any of Müller's groupings. Poulsen (1973) has recently subdivided the genus *Conchoecia,* but as many of his new genera are heterogenous, and since no type species were designated (Martens, 1979), this new species is described here as *Conchoecia hystrix.*

Conchoecia hystrix n. sp.

The specific name is derived from the latin name for the porcupine after the name of the type locality.

The holotype, a male was taken at *Discovery* station 10108 (station details in Table 1). It is mounted in 'Euparal' on slides in the British Museum (Natural History) No. 1980. 132.

MALE. The holotype has a carapace length of 1·23 mm and the only other male specimen taken, also at the type locality, was 1·26 mm long. The breadth of the carapace is equal to its height, and a little less than half its length (Table 2). Viewed laterally the carapace tapers anteriorly (Fig. 1A) with the ventral edge curving smoothly into the posterior edge. Viewed ventrally (Fig. 1B) the sides of the carapace curve smoothly. There are no spines at the posterior dorsal corner and there is an absence of sculpturing. The asymmetric gland on the left valve opens just posterior of the posterior hinge, but just dorsal to the male dorsal glands. Three groups of small edge glands with granular contents open on the right valve between the opening of the asymmetric gland and the posterior ventral corner, and there are corresponding groups of similar but slightly larger glands on the left valve (Fig. 1C).

Frontal organ The stalk of the frontal organ or Organ of Bellonci (Andersson, 1977) ends level with the end of the limb of the first antenna (Fig. 1D). The capitulum is bare of armature. It is downturned with a broad base which initially tapers rapidly but the distal two thirds are parallel-sided. The tip is rounded.

Table 1 Station data and length data for all the specimens of *Conchoecia hystrix* collected on *Discovery* cruise 105.

Station 10108 haul 8 RMT 1 (Net 3) start position 49°23·6′N 12°47·6′W
Depth of fishing 1410–1425 m (15–30 m above sea bed)
Date 6 September 1979 1347–1420 hours. Distance travelled by net 1·39 km
♀♀ 1·34 (mounted specimen), 1·36, 1·32, 1·32, 1·38, 1·38, 1·42, 1·32, 1·32, 1·38, 1·34 mm
♂♂ 1·23 (holotype), 1·26 mm
Stage VI 1·02, 1·02, 1·02, 1·04, 1·06, 1·08, 1·10 mm
Stage V 0·78, 0·84 mm
Stage IV 0·66 mm

Station 10108 haul 7 RMT 1 (Net 2) start position 49°25·4′N 12°49·1′W
Depth of fishing 1350–1410 m (30–90 m above sea bed)
Date 6 September 1979 1247–1347 hours. Distance travelled by net 3·73 km
♀♀ 1·34, 1·38 mm

Station 10110 haul 5 RMT 1 (Net 3) start position 49°17·0′N 11°50·8′W
Depth of fishing 935–1000 m (15–40 m above sea bed)
Date 7 September 1979 2224–2324 hours. Distance travelled by net 2·37 km
Stage VI 1·02 mm

Table 2 Meristic characters of the carapaces, frontal organs and first and second antennae of the male holotype and female paratype expressed as percentages of the total carapace length.

	♂	♀
Carapace length mm	1·23	1·34
Carapace breadth	47·8	41·1
Carapace height	47·8	52·1
Frontal organ stalk	40·7	35·0
capitulum	19·0	
Ant. 1 Segt 1	18·2	–
Segt 2	18·2	–
Total	36·5	17·3
dorsal seta	–	2·0
a	23·9	17·7
b	49·5	
c	6·5	
d	45·1	
Ant. 2 Protoprodite	48·6	40·6
Exopodite segt 1	20·8	19·0
Exopodite segt 2–8	9·6	8·7
Longest swimming seta	49·4	45·3
Endopodite seta f	51·2	35·9
Endopodite seta g	38·1	30·3
Endopodite setae h, i, j	16·4	24·6–30·3

First antenna (Fig. 1D) The first two segments are subequal and bare. The dorsal seta on the second segment that holds the stalk of the frontal organ in place is inserted just over a third of the way from the segment's proximal end. The a seta is long and reflexed back parallel to the limb and almost extends to its base. The c seta is short. The e seta is only slightly longer than the d and b setae, and carries two rows of alternating spines with 20–21

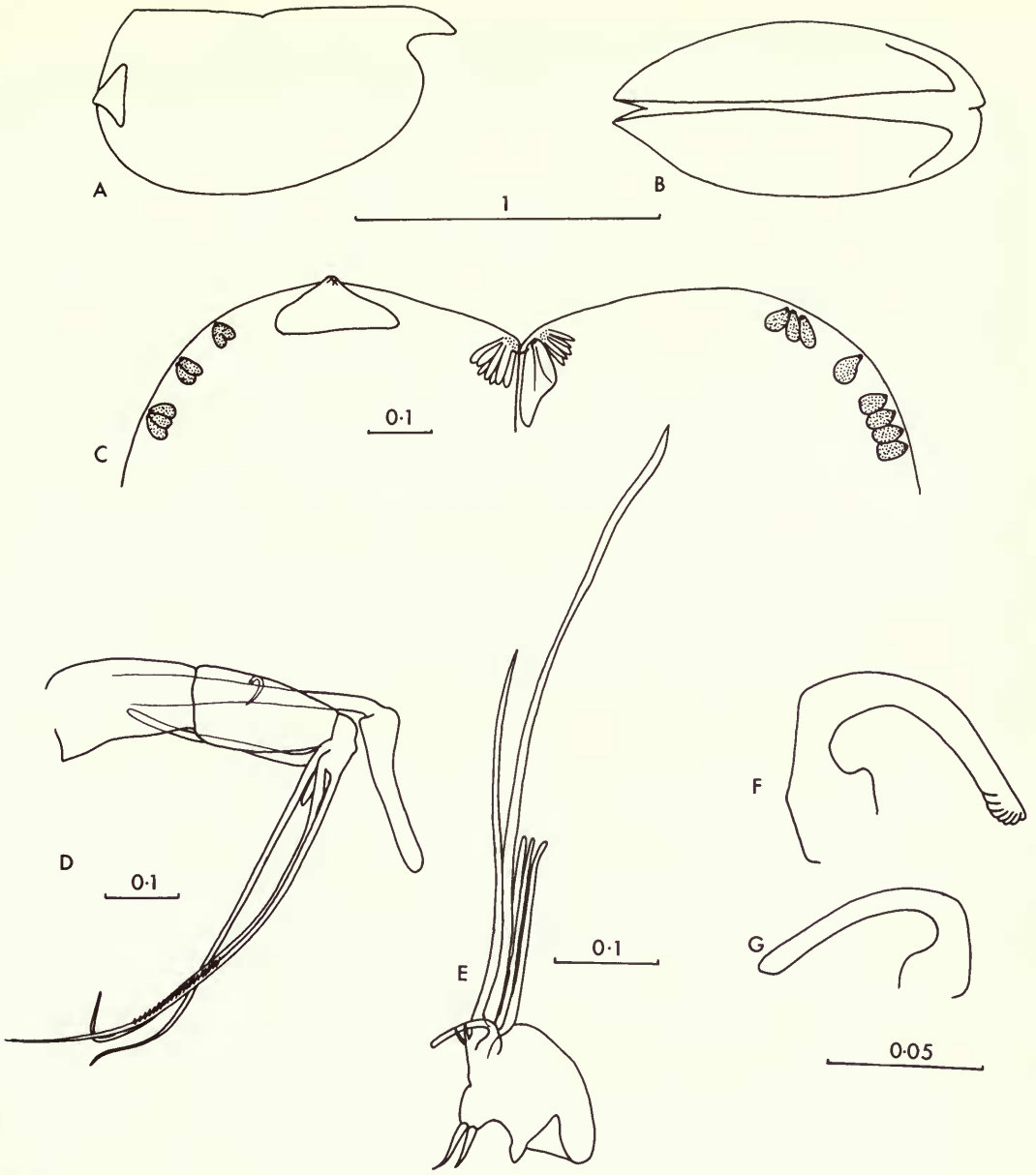

Fig. 1 *Conchoecia hystrix* male holotype. A. Outline of carapace lateral view. B. Outline of carapace ventral view. C. Detail of the carapace glands viewed from the outside showing the asymmetric gland on the left valve opening posterior of the hinge and its position relative to the openings of the male dorsal corner glands, and also the distribution of the edge glands with granular contents. D. Frontal organ and first antenna. E. Endopodite of the left second antenna. F. Hook appendage of the right second antenna. G. Hook appendage of the left second antenna. Scales in millimetres.

spines in each row. There is some suggestion of a weakly developed pad on the b seta, otherwise both the b and d setae are bare.

Second antenna The protopodite is just less than 50% of the carapace length and similar in length to the longest swimming seta. The f seta on the endopodite is slightly longer and is nearly 4/3's the length of the g seta and three times the lengths of the h, i and j setae. All these

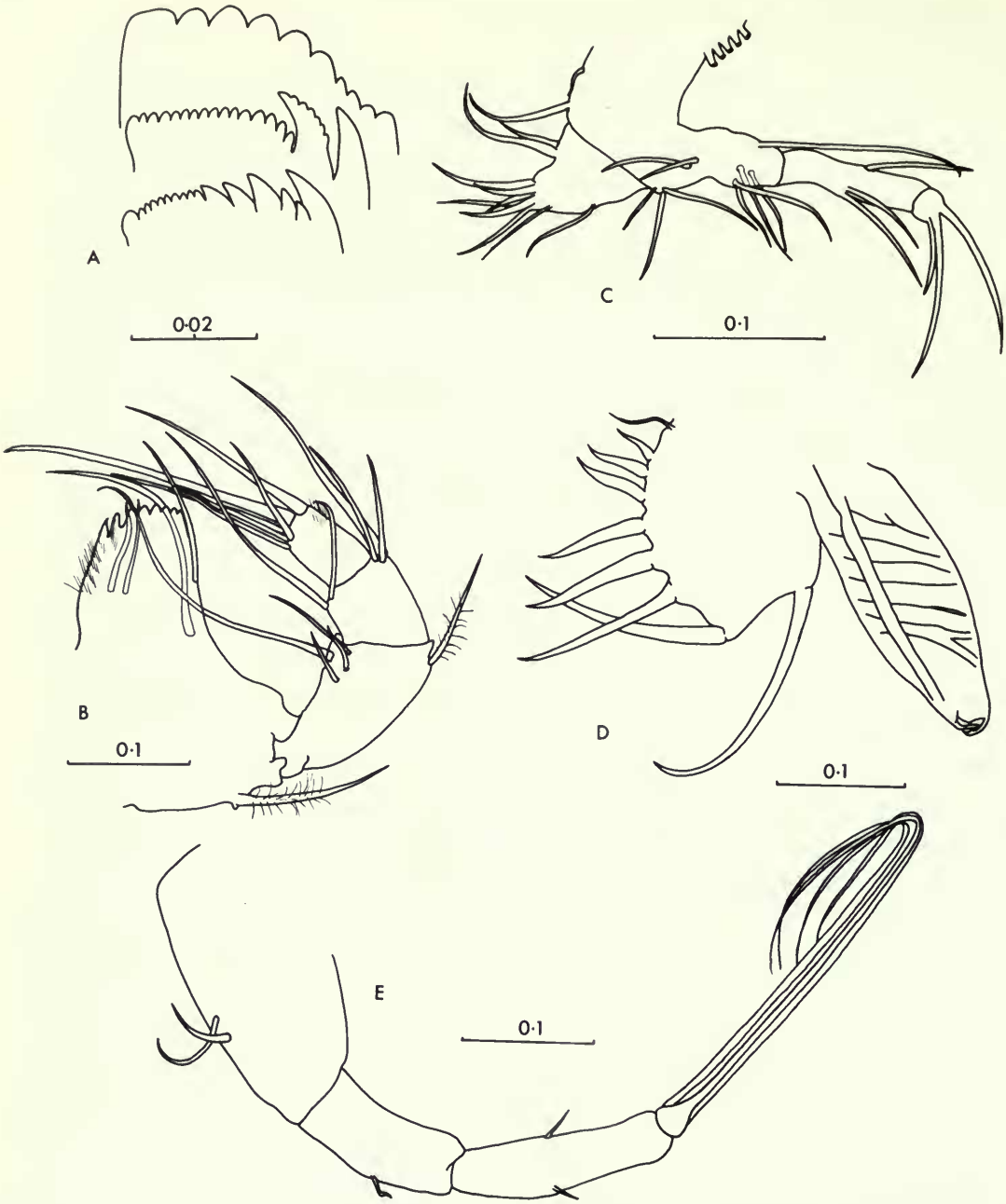

Fig. 2 *Conchoecia hystrix* male holotype. A. Toothed edge of the coxale and tooth lists of the mandible. B. Basale and endopodite of the mandible. C. Fifth limb. D. Caudal furca and copulatory appendage. E. Sixth limb. Scales in millimetres.

setae are bare. The a and b setae are also bare (Fig. 1E). The hook appendage on the right endopodite (Fig. 1F) has a short straight basal part, followed by a right angle bend and a slightly tapering curved arm which has a ridged rounded end. The left hook appendage (Fig. 1G) is a much weaker structure lacking the marked right angle bend and the ridging on its tip.

Mandible The first segment of the exopodite (Fig. 2B) carries two long setae and two very short setae on its inner face. The longest terminal claw seta is nearly as long as the total length of the exopodite. The toothed edge of the *pars incisa* is normal for the genus. There are rows of hairs in the region below the two spine teeth. The coxale toothed edge consists of ten teeth (Fig. 2A). The distal list has two large teeth, the second of which has secondary serrations, followed by 17–18 small less well defined teeth. The proximal list has a large tooth followed by two smaller teeth, another large tooth and a further fifteen teeth that become progressively smaller. The inner toothed surface, used by Poulsen (1973) as one of the main criteria for separating his genera, appears to be undivided.

Labrum It is slightly notched, although the type specimen appears to have an aberrant structure.

Maxilla The basal segment (Fig. 3E) carries a seta. The first endopodite segment has six anterior, one lateral and three posterior setae.

Fifth limb The first segment of the exopodite (Fig. 2C) has a group of three setae ventrally near its base, and a further two setae inserted laterally on its outer face. A further two setae occur ventrally towards its distal end together with a lateral seta on both the inner and outer faces. There is also a long dorsal seta which extends to the tip of the limb. The second segment has one dorsal and two ventral setae. The most ventral of the terminal claw setae is relatively short and thin.

Sixth limb The basal segment (Fig. 2E) carries two very small setae. The second segment has a single ventral seta and the third segment one seta on both dorsal and ventral surfaces.

Caudal Furca The furca (Fig. 2D) carries the normal eight claw setae for the genus with a dorsal unpaired seta. The first claw setae are more curved than usual.

Copulatory organ The organ (Fig. 2D) tapers towards its rounded end. There are about five bands of oblique muscles.

Female. The female paratype has a carapace length of 1·34 mm. It, too, is mounted on slides in 'Euparal' and deposited in the British Museum (Natural History) No. 1980. 133. The range in length of the other thirteen specimens is 1·32–1·42 mm, averaging 1·35 mm. The carapace shape (Fig. 3A, B) is similar to that of the male's, although the height is relatively greater and the breadth relatively slimmer. The positions of the asymmetrical glands are similar to the male, and there is the same distribution of edge glands with granular contents. There is a faint longitudinal sculpturing on the carapace of some specimens.

Frontal organ The capitulum is not well differentiated from the stalk (Fig. 3C), but it is bent down very slightly. The ventral and lateral surfaces of the capitulum are covered with short spines. The tip of the capitulum is produced into a spine. The whole organ is about twice the length of the limb of the first antennae.

First antenna The limb is not well differentiated into segments (Fig. 3C) and it is bare of supplementary armature. There is a very short dorsal seta which does not even reach the end of the limb. The a–d setae are half the length of the e seta, which is about a third the carapace length. The e seta carries a few relatively long distally pointing spinules on its trailing edge half way along its length, and a scatter of similar spinules more distally on the leading edge.

Second antenna The protopodite (Fig. 3D) is around 40% of the total carapace length. It carries a patch of hairs close to the insertion of the endopodite. The first exopodite segment is just less than half the length of the protopodite and just over twice the length of the other exopodite segments. The longest swimming seta is a little longer than the protopodite.

On the endopodite the a and b seta are bare. There are no c, d or e setae. The f seta which is equal in length to the protopodite, is bare but is slightly flattened distally. The g seta is similar in structure and length to the h, i and j setae.

Gut contents The gut contents included a multilayered block of folded membranous material of unidentifiable origin. The contents were rich in densely staining granules that appeared to be coccoid bacteria about 1 μm in diameter. It also included a few rounded mineral particles 2–4 μm in size, suggesting the species may feed on the sea bed.

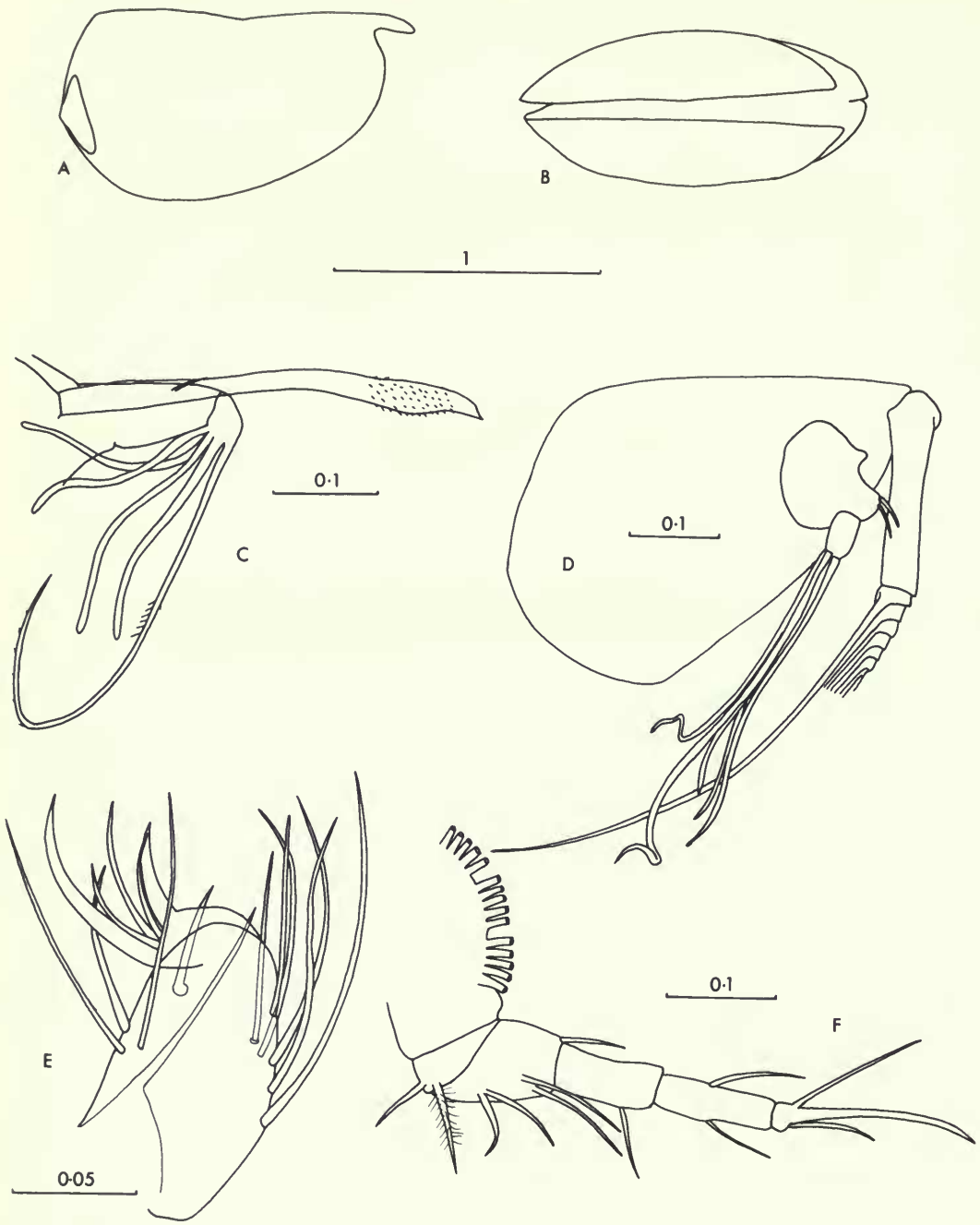

Fig. 3 *Conchoecia hystrix* female paratype. A. Carapace lateral view. B. Carapace ventral view. C. Frontal organ and first antenna. D. Second antenna. E. Endopodite of maxilla. F. Sixth limb. Scales in millimetres.

Discussion. The depth range of this species appears to be restricted. It was absent from samples collected at depths of 1600–1700 m and only a single specimen was taken at a shallower depth than at the type locality. The occurrence of novel species close to the sea bed even in relatively shallow depths suggests that there are distinct environmental conditions in this poorly explored habitat (e.g. Wishner, 1980).

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